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EXAMINER
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FERRIS, DERRICK W

ART UNIT	PAPER NUMBER
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2663

DATE MAILED: 10/24/2003

11

Please find below and/or attached an Office communication concerning this application or proceeding.

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# Office Action Summary

Application No.

09/513,914

Applicant(s)

DANTU ET AL.

Examiner

Derrick W. Ferris

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-77 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-77 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 February 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) g.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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## DETAILED ACTION

### *Response to Amendment*

1. **Claims 1-77** as amended are still in consideration for this application. Applicant has amended claims 1 and 44.
2. Examiner does **not withdraw** the 112-first paragraph rejection for Office action filed 7/16/03. Still at issue is how one skilled in the art would queue traffic at the new primary router until traffic queued in the existing primary wireless router is processed (i.e., in reference to applicant's claim 73, lines 19-22). It appears applicant has amended the written description to include the limitation as recited in the claim. However, at issue is the enablement of the above-cited limitation with respect to applicant's specification. In particular, examiner notes with respect to enablement how one skilled in the art would know when to queue the traffic until the traffic queued in the previous existing router is processed. In other words, examiner first checked to see how applicant attempts to solve the problem of determining when processing of a first queue at a primary router is finished/processed, and second to determine how such knowledge of queuing is communicated from a primary router to a new primary router. Applicant appears to be completely silent on the first problem of determining when processing of a queue is complete. Applicant attempts to overcome the second deficiency by citing broad mechanisms for how information in general is transferred between routers. In particular, applicant attempts to draw a correlation between "mobility management" and the filling rate of a queue (e.g., see applicant's specification on page 18, lines 9-11 and page 13, lines 18-22). Examiner has found no such correlation in applicant's specification.

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3. Examiner does **not withdraw** the obviousness rejection to *Mikkonen* for Office action filed 7/16/03 for claim sets 31-38, 39-43, 50-59, 60-63, 64-72, 73-75, and 76-77. However, examiner **withdraws** the obviousness rejection to *Mikkonen* for claim sets 1-30 and 44-49 as necessitated by amendment. Please find a new rejection below for the claims as necessitated by amendment. At issue for claim sets 31-38 and 39-43 (and equivalents) are a first and second virtual channel. Examiner notes a reasonable but broad interpretation of “virtual channel”. As such, see at least column 3, lines 1-44; columns 9-10; and figures 4b and 6 of *Mikkonen*.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. **Claims 73-75** are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In particular, not enough information is present in the specification to determine how the new primary wireless router determines when the old primary router has finished processing information with respect to the limitation “queuing traffic for the call at the new primary wireless router until traffic previously queued in the existing primary wireless router is processed” (claim 73, lines 18-20 and claim 74). Examiner notes support for the limitation is found in applicant’s specification on page 35 (as an introductory paragraph), pages 41-42 and figure 20 (as the detailed description). Specifically applicant’s disclosure does not explain how a new primary

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wireless router is activated at step 564 (see page 42, lines 3-10). In other words, it is unclear with respect to steps 562 and 564 on how a new primary wireless router determines that the previously queued traffic in the existing primary wireless router has finished processing (i.e., there is a gap in applicant's specification with respect to how the task is implemented).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claims 31-33, and 35-41** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,587,457 to *Mikkonen*.

As to **claim 31**, *Mikkonen* reference is a wireless router with two interfaces: a first interface operable to communicate wireless packets and a second interface operable to communicate wireline packets. Examiner notes that it would have been obvious to a skilled artisan prior to applicant's invention to combine the functionality of both interfaces into a single device (i.e., a wireless router). In support, *Mikkonen* discloses a mobile IP router 5 (i.e., a wireless router) which contains two basic interfaces, the first interface as part of the access point 4 and the second interface as part of the access point controller or mobile router 5 as shown in figures 2 and 4. Examiner notes the integration of the two devices is shown with respect to a common Ethernet bus as is known in the art shown in figure 4b. Furthermore, examiner notes in figure 2 that the functionality of an access point 4 and access point controller are separated for a first access point controller

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(APC1) and combined for second and third access point controllers (APC2 and APC3) thus also providing a motivation. As *Mikkonen* teaches the functionality for both interfaces, examiner notes a motivation is to combine or integrate functions as part of an engineering design choice. Finally, examiner notes the combined functionality for a traffic controller is taught in the combination of an access point and access point controller. Examiner notes that it may not be clear from *Mikkonen* how many connections (i.e., flows) are setup by the wireless router (i.e., at least a first and second virtual path). Examiner notes that it would have been obvious to a skilled artisan prior to applicant's invention to use at least two virtual paths, one path for wireline traffic and one path for wireless traffic. As support, *Mikkonen* discloses that a radio network access comprises the operations for accomplishing data transmission between the wireless terminal and the core network as well as for controlling wireless resources (such as handoff between a first and second router). Thus *Mikkonen* provides a motivation on having at least two types of connections (i.e., one for data/voice traffic and one for wireless protocol information such as handoff information). Examiner furthermore notes that each wireless router controls more than one connection thus providing further support for more than one virtual path [column 5, lines 45-67; column 6, lines 54-67; column 7, lines 1-20].

As to **claim 32**, *Mikkonen* discloses a label switched path, see figure 6.

As to **claim 33**, see figure 4b

As to **claims 35-36**, see column 7, lines 65-67 and column 8, lines 1-4 where the mobile IP router provides policy management and admission control and where QoS is used for allocating bandwidth and reserving resources as is known in the art.

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As to **claim 37**, see *Mikkonen* column 8, line 1.

As to **claim 38**, see the combined rejections for claims 35-37.

As to **claim 39**, see figure 4b with respect to an IP tag and RFID.

As to **claims 40 and 41**, see figure 6.

8. **Claims 1-8,12,14-15,17-30,34,42-49, and 50-77** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,587,457 to *Mikkonen* in view of U.S. Patent No. 6,256,300 to *Ahmed et al.* ("*Ahmed*").

*Examiner notes an assumption was made in order to overcome the 112-first paragraph rejection for claims 73-75 (the assumption that the packets are transmitted in order).*

As to **claim 1**, not clearly disclosed in the *Mikkonen* reference is a wireless router with two interfaces: a first interface operable to communicate wireless packets and a second interface operable to communicate wireline packets. Examiner notes that it would have been obvious to a skilled artisan prior to applicant's invention to combine the functionality of both interfaces into a single device (i.e., a wireless router). In support, *Mikkonen* discloses a mobile IP router 5 (i.e., a wireless router) which contains two basic interfaces, the first interface as part of the access point 4 and the second interface as part of the access point controller or mobile router 5 as shown in figures 2 and 4. Examiner notes the integration of the two devices is shown with respect to a common Ethernet bus as is known in the art shown in figure 4b. Furthermore, examiner notes in figure 2 that the functionality of an access point 4 and access point controller are separated for a first access point controller (APC1) and combined for second and third access point controllers (APC2 and ACP3) thus also providing a motivation. As *Mikkonen* teaches the

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functionality for both interfaces, examiner notes a motivation is to combine or integrate functions as part of an engineering design choice. Finally, examiner notes the combined functionality for a traffic controller is taught in the combination of an access point and access point controller. Also not clearly disclosed is the further limitation of “intercommunication” between wireless routers (i.e., the further amended limitation “to communicate with other wireless routers” and “to intercommunicate”). Examiner notes that it would have been obvious for two wireless routers to intercommunicate with one another. One motivation would be for handoff control. *Mikkonen* provides such support by disclosing that the wireless routers support handoff/handover (see column 5, lines 44-56). Thus *Mikkonen* provides general support for wireless router intercommunication. Examiner also notes that *Ahmed* provides further support by disclosing specific examples of how intercommunication processes between wireless routers occurs (e.g., see column 5, lines 22-45 and columns 19-20 of *Ahmed*). Thus *Ahmed* provides further motivation for teaching inter-communication between wireless routers as is known in the art. Thus *Ahmed* also cures the above-cited deficiency.

As both reference disclose wireless networking in general, and more particularly handoffs in a wireless communications system such as GSM for packet based networks, examiner notes a strong motivation to combine the subject matter as a whole for both references.

As to **claim 2**, see figure 4b

As to **claim 3**, see figure 2 with respect to the mobile IP router and the mobile domain router.



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As to **claim 4**, see figure 6 which is technology independent.

As to **claim 5**, as the access point is technology independent examiner notes a first and a second access technology are used [column 5, lines 38-41].

As to **claims 6**, *Mikkonen* teaches that soft handoffs are supported [column 5, lines 51-53]. Thus an access point controller can handle handoff a mobile through more than one access point.

As to **claims 7, 20 and 50**, *Mikkonen* in general discloses that handoffs are accomplished using virtual paths or connections as is known in the art [column 5, lines 51-53]. Examiner notes the reference is silent or deficient to how soft handoffs are performed (i.e., other than the connection is moved from control station (i.e., wireless router) to another control station (i.e., wireless router) as is known in the art). Examiner notes that it would have been inherent or obvious to a skilled artisan prior to applicant's invention to perform the soft handoff by using virtual path between the two control nodes (i.e., wireless routers). As support, examiner notes that *Mikkonen* teaches in general using virtual paths between nodes in a system, such as two nodes in a system that are performing a handoff. As further support, *Ahmed* discloses how handoffs are used in a third generation network (such as the one purposed by *Mikkonen*) using the concept of an anchor base station [column 20, lines 2-15] as well as tunnels [column 20, lines 19-21]. Examiner notes that a skilled artisan would recognize that tunnels are implemented using MPLS taught by the combined teachings of *Mikkonen* and *Ahmed* (i.e., a virtual path acts as a tunnel as taught in the combined rejection).

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As to **claim 8**, *Mikkonen* teaches micro-mobility by having a domain router connect other mobile IP routers in a domain, see figure 2.

As to **claims 12**, see column 7, lines 65-67 and column 8, lines 1-4 where the mobile IP router provides policy management and admission control

As to **claim 14**, see the combined rejections for claims 4 and 6.

As to **claim 15**, as the mobile IP router provides QoS examiner notes that the wireless router is further operable to classify packets [column 8, lines 5-29].

As to **claims 17-18**, see the rejection for claims 12-13.

As to **claim 19**, examiner notes that it would have been obvious to a skilled artisan prior to applicant's invention to implement the invention using software as a matter of design choice as is known in the art.

As to **claim 21**, *Ahmed* discloses a selector in selecting an anchor base station for a soft handoff [column 20, lines 2-15].

As to **claim 22**, *Ahmed* discloses a distributor by duplicating packets (i.e., more than one instance) sent to more than one base station during a soft handoff [column 20, lines 2-15].

As to **claim 23**, examiner notes the reference in combination teaches using MPLS to implement the virtual path.

As to **claims 24-25**, see the similar rejection to claim 2.

As to **claim 26-27**, examiner notes that it would have been obvious to a skilled artisan prior to applicant's invention to implement a soft handover as part of hardware

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and/or software as a manner of design choice. Examiner notes further support provided by *Ahmed* column 6, lines 26-43.

As to claims **28-29 and 42**, examiner notes a synchronization bias for synchronous transmission is taught using the anchor base station as is known in the art [column 20, lines 2-15]. In particular, packets are transmitted in duplicate (i.e., multicast) with synchronization bias as is known in the art for the purpose or motivation of selecting or combining packets as taught by the reference.

As to **claim 30**, in addition to the rejection for claim 20, *Ahmed* teaches a packet-based network which in combination is an IP flow.

As to **claim 34**, see the same rejection for claim 20 where examiner notes that it would have been obvious to a skilled artisan prior to applicant's invention to use a second virtual path to provide a soft handoff. Examiner notes the motivation is provided by *Ahmed* that discloses connections between the various base stations where one connection is a virtual path as taught in combination with *Mikkonen*.

As to **claim 43**, examiner note that the anchor base station acts as a primary router for the call as is known in the art.

As to **claim 44**, see the rejection for claim 1.

As to **claims 45**, see similar rejection for claim 35.

As to **claims 46**, see similar rejection for claim 36.

As to **claim 47**, see the rejection for claim 6.

As to **claim 48**, see similar rejection for claim 37.

As to **claim 49**, see the rejection for claim 1

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As to **claim 51**, see the rejection for claim 23.

As to **claims 52-53**, examiner notes the selection of an anchor base station using a broad but reasonable interpretation of a forwarding table and trigger rule as is known in the art (e.g., see figure 3b block 30 of *Ahmed*).

As to **claims 54-56**, examiner notes that it would have been obvious to a skilled artisan prior to applicant's invention to use certain selection criteria for a handoff which includes pattern matching, error correction bits, and frame sequence number (FSN) of the signal. As support, *Ahmed* discloses selecting some "quality metric" for each packet received [column 20, lines 9-10] where such a "quality metric" is pattern matching, error correction bits, or frame sequence numbers as is known in the art.

As to **claims 57-58**, *Ahmed* teaches a broad but reasonable interpretation of an active list and a candidate list in the selection of an anchor base station (i.e., each wireless router is equipped with a handoff manager capable of collecting relevant information from neighboring wireless routers) [column 19, lines 21-36].

As to **claim 59**, *Mikkonen* discloses an RF front end as is known in the art.

As to **claim 60**, in addition to the reasoning for claim 7, examiner notes the active set of routers includes an anchor base station (i.e., the primary router) and a set of directed nodes (i.e., secondary wireless routers). *Ahmed* teaches in general that mobiles communicate with the network node also assist in handoff decisions by providing signal strength information from neighboring nodes [column 19, lines 24-26]. Thus a communication is received from a mobile device identifying an active set of routers.

As to **claim 61**, see the rejection for claim 51.

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As to **claim 62**, see figure 4 of *Mikkonen*.

As to **claim 63**, both references disclose GSM radio frames.

As to **claim 64**, *Mikkonen* discloses that handoffs are possible between wireless and wireline routers. *Mikkonen* is silent or deficient on how the handoffs are preformed. Examiner notes that it would have been obvious to a skilled artisan prior to applicant's invention to perform a handoff using an anchor base station (i.e., wireless router) as is known in the art. Examiner notes that *Ahmed* discloses such a motivation since *Ahmed* teaches the concept of a soft handoff for a base station using packets for an anchor base station as is known in the art (see similar rejection with respect to claim 60).

As to **claim 65**, see the same reasoning behind the rejection for claim 2.

As to **claims 66-67**, see the rejection for claim 21.

As to **claim 68**, see the same reasoning behind the rejection for claim 23.

As to **claims 69-72**, see the rejection for claims 28-29.

As to **claims 73-74**, in addition to the rejection for claim 64, *Ahmed* further teaches that a remote host must be notified when an anchor base station changes (i.e., informing a network destination device of the call of the new primary wireless router) [column 20, lines 47-63]. Also disclosed in general is forwarding the information from the old primary router (i.e., the old anchor base station) to the new primary router (i.e., the new anchor base station) [column 20, lines 58-63]. *Ahmed* also teaches forwarding packets from the old anchor to the new anchor. Examiner notes this meets a broad but reasonable interpretation of "queuing traffic for the call at the new primary wireless router until traffic previously queued in the exiting primary wireless router is processed"

since a skilled artisan would recognize that information in general is first processed before handing off to a new base station (i.e., since the information is transmitted in order similar to applicant's specification on page 42, line 2).

As to **claim 75**, see the rejection for claim 23.

As to **claim 76**, see the rejection for claim 73.

As to **claim 77**, see the rejection for claim 23.

9. **Claims 9-11** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,587,457 to *Mikkonen* in view of U.S. Patent No. 6,256,300 to *Ahmed et al.* ("*Ahmed*") and "Convergence Between Public Switching and the Internet" to *Schoen et al.* ("*Schoen*").

As to **claims 9-11**, *Mikkonen* teaches that the core network consists of nodes connected to the Internet [column 6, lines 1-2]. Examiner notes the reference is silent or deficient to a gateway connected to a public switched telephone network (PSTN). Examiner notes that it would have been obvious to a skilled artisan prior to applicant's invention to connect the Internet to the PSTN. One motivation is to route calls over the Internet (or vice versa). As support *Schoen* discloses various forms for how the PSTN would be connected to the Internet which includes a call agent and a media gateway in general (e.g., see figure 12 on page 64).

10. **Claims 13 and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,587,457 to *Mikkonen* in view of U.S. Patent No. 6,256,300 to *Ahmed et al.* ("*Ahmed*") and "Mobile IP and Security Issue: An Overview" to *Perkins*.

As to **claims 13 and 16**, *Mikkonen* is general silent to mobile security and in particular using an AAA server. Examiner notes that it would have been obvious to a

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skilled artisan prior to applicant's invention to provide security in a wireless system that includes an AAA server. As support and motivation examiner notes that Perkins discloses using an AAA server for mobile IP as is known in the art.

***Conclusion***

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derrick W. Ferris whose telephone number is (703) 305-4225. The examiner can normally be reached on M-F 9 A.M. - 4:30 P.M. E.S.T.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on (703) 308-5340. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.


Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 305-3900.

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Derrick W. Ferris  
Examiner  
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